

Studies on spiroboloid millipeds.
X. Commentary on the status of *Salpidobolus*
and some related rhinocricid genera

by

Richard L. HOFFMAN

With 12 text-figures.

Compilation of a list of the apparently valid genera of the diplopod family Rhinocricidae has led to the consideration of some early names proposed in the group.

The Rhinocricidae perfectly exemplifies the condition of a family with a large number of easily recognizable species, but in which the delimitation of genera is extremely difficult owing to lack of major anatomical discontinuities. Complication is added by an apparent tendency for evolutionary reduction or simplification of gonopod structure, possibly resulting in convergently derived patterns of form. So far, most authors working with rhinocricids have based their supraspecific groupings largely upon peripheral and unquestionably superficial modifications of various exoskeletal features: presence or absence of scobinae, number of antennal sensory cones, relative prolongation of the epiproct, dorsal spination of the paraprocts, and so on. In connection with modifications of the posterior gonopods, such characters afford the possibility for recognition of a number of patently artificial assemblages, most of which lack geographic correlation, but so far no one has proposed more desirable alternative approaches aside from the excellent early work of BROLEMANN (1913, 1914) and a few recent suggestions along the same lines by the present author (HOFFMAN, 1953, 1960).

The practice of establishing generic groupings upon peripheral characters of only dubious significance has resulted in the proposal so far of 30 generic names in the Rhinocricidae, a large proportion of them being monotypic or nearly so.

Consistency with the usual philosophy of basing supraspecific taxa of diplopods chiefly on gonopod structure, however, compels that this family be no exception, even if the result be a single rhinocricid genus with 600 species.

As I have remarked on previous occasions, reliance upon the presence or absence of scobinae is certainly a case of misplaced values since these dorsal paramedian pits are not only highly variable as regards their mode of development even within a given species, but moreover their occurrence often contradicts groups defined on the basis of gonopod structure. In several known species in the West Indies, scobinae occur in one sex but not the other.

The number of sensory cones on the terminal antennomere is likewise a character of considerable value in distinguishing species, but, in my view, of very limited significance for the formation of higher groups. The usual distinction made is that between four cones and "many", yet as Pocock noted as long ago as 1909, the latter category ranges from five to 20 or more, and the difference between four, five, or six cones does not seem to be especially significant even though the usual number for diplopods generally is four. In my view, if two rhinocricid species are basically similar in structure and gonopod form, it is idle and pointless to place them in different genera merely because one has four cones, the other eight or ten. Nothing I have seen so far in numerous rhinocricid taxa leads me to think that antennal characters will be at all useful in the definition of "natural" genera in this family.

The degree of prolongation of the epiproct, often utilized as a generic character by Chamberlin, is so mutable that its taxonomic utility hardly needs to be taken seriously. A long slender spiniform epiproct is, to be sure, certainly impressive at first glance, but for every species extreme in this respect there are many shorter and intermediate forms.

Subspinose production of the dorsal ends of the paraprocts in several Neotropical species forms the basis of a genus *Oxyptyge* Silvestri, 1897, with the inevitable Chamberlinian satellite names *Oxyptygides* and *Zipyge*; and the enlargement of the hypoproct in two Jamaican species has been formalized by Pocock's early generic name *Thyroproctus*. A slight modification of the pleurotergum of the 2nd body segment in a rhinocricid from Yucatan induced Chamberlin to propose the name *Yucatabolus*. Yet, in all of these nominal taxa, the gonopod structure is monotonously similar and not really different from the common pattern of most rhinocricids.

Occasional reliance has been placed upon modifications in gonopod structure, beginning with the precedent of BROLEMANN in the definition of such groups as *Eurhinocricus* (1903), and *Dinematocricus*, *Cladiscocricus*, and *Acladocricus* (1913). All of these names were set up in recognition of major patterns in the posterior gonopods, and in my view were eminently justified as reflecting important differentiation. Unfortunately such groups were promptly perverted by later authors

(Verhoeff's *Adelobolus*: similar to *Acladocricus* but with four sensory cones instead of many; Attems' *Polyconoceras*: differing from *Dinematocricus* only in having many cones instead of four; and so on . . .). I am convinced that we must resort to gonopod characters as the sine qua non in delimiting rhinocricid genera, but with considerable caution. As a case in point, KRAUS (1954) set up *Perucricus* for a single species having the sternal plate of the anterior gonopod trapeziform; it is true that such a shape is unusual for the family but there is a lot of variation in that particular sclerite among forms with identical posterior gonopods. CHAMBERLIN (1955) dismissed *Perucricus* and withdrew it into his own "genus" *Lissoecricus*, although this was certainly arbitrary because Chamberlin normally set up genera on far less meaningful grounds than that upon which *Perucricus* rested.

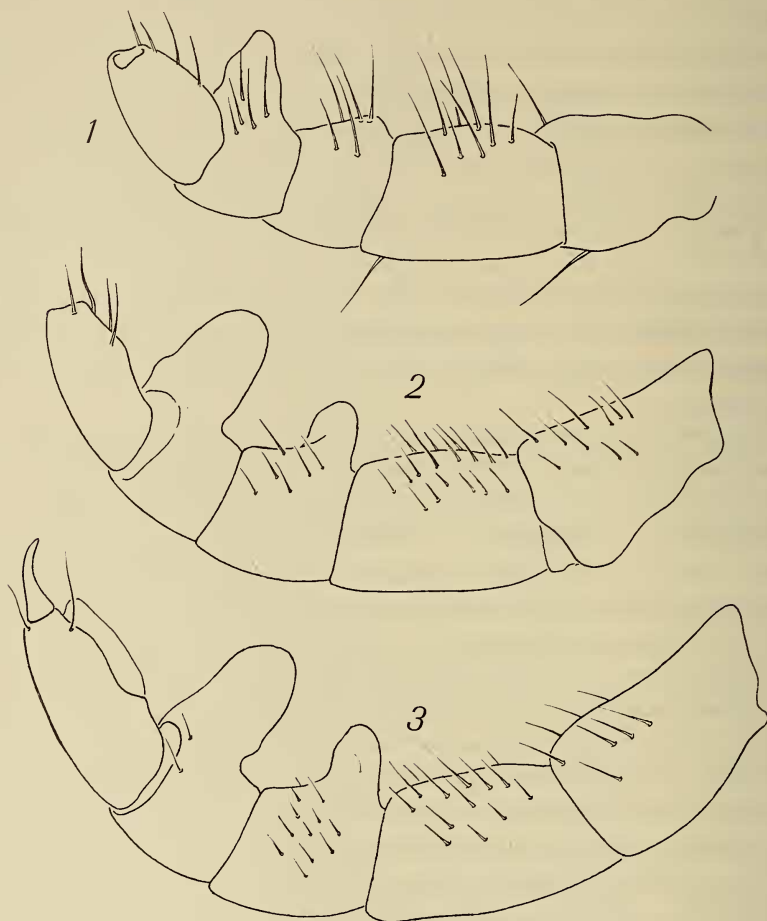
On the other hand, Verhoeff's genus *Argentocricus* (1941), based on several characters of both pairs of gonopods seems much better founded, and includes not one but several allied species in the region of Bolivia, northern Argentina, and Paraguay.

In general, the anterior gonopods—aside from minor and sporadic variability in shape and proportions of the sternal plate—are basically similar throughout the entire family except in a few groups of species (notably those called *Neocricus* and *Andocricus* by Chamberlin) in which the telopodites and often the coxal endites as well are considerably prolonged distally. The posterior members are subject to greater variation. The common pattern at least in New World species is that of a biramous appendage, one of the branches slender and carrying the seminal groove, the other usually longer, broader, and apically laminate-expanded, with a subterminal acuminate prolongation. In many species, chiefly those of the southwest Pacific region, both apical branches are subsimilar in size and shape, and in some, occurring in both the Antilles and Indoaustralian region, the posterior gonopod has been reduced to a single filiform process. Although the effect produced by this tendency is remarkably similar in the two areas, we still do not know if *Acladocricus*, *Rhinocricus*, and *Alcimobolus* ever had a common ancestor and so comprise a monophyletic group or whether, as I suspect, they originated quite independently on opposite sides of the world.

At the present time, some eight nominal genera have been proposed for species of the Indoaustralian region, most of them on the basis of exceptionally tenuous characters. Moreover there have been some nomenclatorial irregularities: ATTEMS, in 1914, placed *Acladocricus* as a subgenus within his genus *Polyconoceras* which is younger by a year.

Disregarding such characters as scobinae and antennal sensory cones, we find that on the basis of gonopod structure there are two major groups of Indoaustralian rhinocricids: one in which the posterior gonopod is simple, another in which the telopodite is apically divided into two slender rami. There are in

addition several other minor variations formalized by the names *Cladiscocricus* and *Desmocricus*, the status of which is passed over for the present. Both of these "genera" are monotypic.



Salpidobolus meyeri (Silvestri)

FIGS. 1-3.

First, second, and third legs of male, left side, oral aspect.

The first major group, with simple styliform or flagelliform posterior gonopod telopodite, has received the names *Acladocricus* and *Adelobolus*. I think it is an assemblage of species derived polyphyletically from those of the other group, because of some nearly intermediate known forms and because there is really no cohesive distributional pattern. Species of *Acladocricus* occur in the Philippines,

Borneo, Sulawesi, the Solomon Islands, and Queensland, but apparently not on New Guinea or New Britain.

The second, and much larger group of species, has the posterior gonopod distally bifid, or, more accurately, the slender acuminate telopodite is provided with an even more slender solenomerite from about its midlength. Sometimes the latter is closely applied to the tibiotarsus and could thus be easily overlooked. Sometimes it is as long as the main part, but distally divergent from it (fig. 5). In some forms the solenomerite is recurved proximad into a semicircle, or may be much shorter than the tibiotarsal region. This group received the name *Dinematocricus* from BROLEMANN in 1913 and *Polyconoceras* from ATTEMS in 1914. Both authors overlooked the much earlier proposal of *Salpidobolus* by SILVESTRI in 1897, which although published without diagnosis was based upon a well described form (*Rhinocricus meyeri* Silvestri) which I am sure would have been admitted by either of the subsequent authors to their respective genera.

It is to the credit of CHAMBERLIN that he recognized in 1920 the priority enjoyed by *Salpidobolus*. However, solely on the basis of the enlarged anterior podomeres of *S. meyeri* (see figs. 1-3) CHAMBERLIN decided to keep this genus and species separate from *Dinematocricus* (he was unaware, probably because of the war, 1914-1918, of Attem's description of *Polyconoceras*). In my opinion, this degree of difference is scarcely of generic importance.

SUMMARY OF INDOAUSTRALIAN RHINOCRICID GENERA

In order to place the subject of this discussion into a suitable frame of reference, I provide here a brief synopsis of the Old World genera of Rhinocricidae which I consider to be nameworthy aggregations of species, along with some taxa of more dubious status.

Genus *Salpidobolus* Silvestri

Salpidobolus Silvestri, 1897, *Annali Mus. civ. Stor. nat. Genova*, vol. 38, p. 651.

Type species, *Rhinocricus meyeri* Silvestri, 1897, by original designation.

—CHAMBERLIN, 1920, *Bull. Mus. Comp. Zool.*, vol. 64, p. 176.

Dinematocricus Brolemann, 1913, *Rec. Aust. Mus.*, vol. 10, p. 122. Type species,

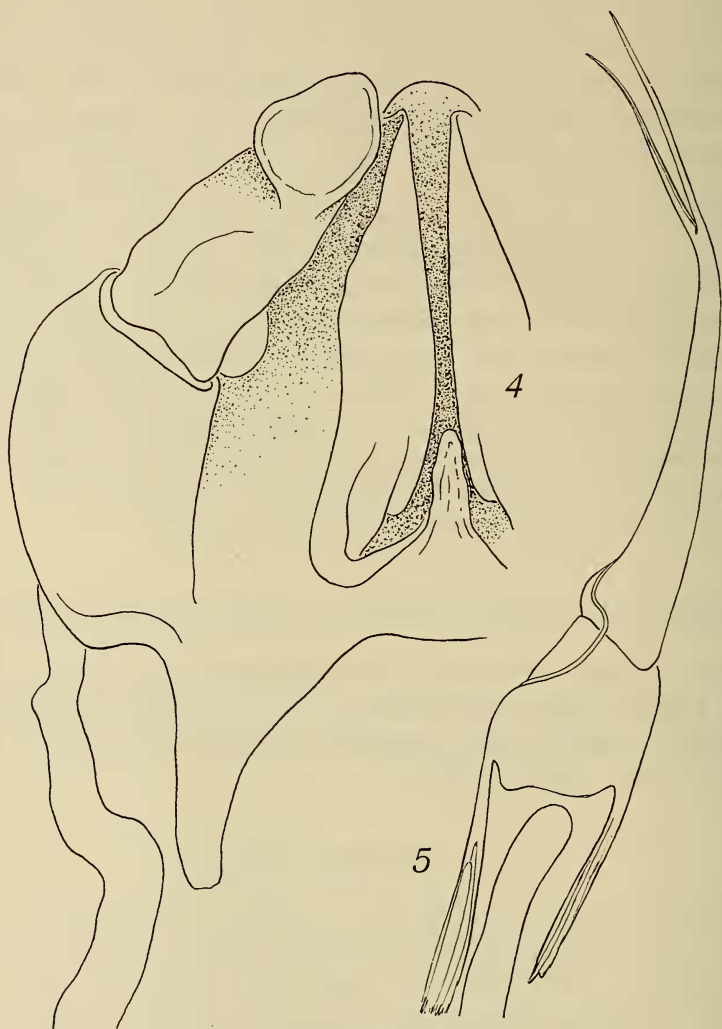
D. lanceolatus Brol., by original designation. New Synonymy!

Polyconoceras Attems, 1914, *Arch. Naturgesch.*, vol. 80, A4, p. 309. Type species,

P. fossatus Attems, by original designation. New Synonymy!

The essential characters of this group have been mentioned in the introductory discussion, and the typical form of the posterior gonopod is shown in figures 5 and 6. I do not feel that the presence of modified podomeres on the

anteriormost legs of the male sex is a sufficient basis for separating *S. meyeri* from other East Indian rhinocricids having a similar gonopod structure, nor the number of antennal sensory cones justification for setting off *Dinematocricus*.



Salpidobolus meyeri (Silvestri)

FIG. 4.
Coleopods, right side, aboral aspect.

FIG. 5.
Phallopod of right side, oral aspect.

A large number of species names are thus referable to *Salpidobolus* as now conceived, many of them having been proposed with little or no allusion to, or comparison with, already described forms, so that much synonymy is to be expected following a revision of type material. This should be especially true for the numerous forms described by Karsch from the Fijis in 1881, then by CHAMBERLIN in 1920.

The generic range extends from Lombok through Sulawesi and New Guinea east as far as Fiji and south to Queensland. I doubt that species are endemic to Java, although there seems no reason to doubt Carl's *lombokensis*.

The occurrence of this genus on Borneo rests solely upon the report by ATTEMS (1897) of a single specimen of *Rhinocricus virgatus* from the "Baram-flusse" in Sarawak. ATTEMS also had a series of *virgatus* from Minahassa, Sulawesi, and it was subsequently taken on the northern peninsula of that island by P. Sarasin (CARL, 1912). On biogeographic grounds such a distribution is quite implausible and I suggest that the Baram River specimen was merely mislabeled. However, *Salpidobolus* is well-represented in Sulawesi and I can now add the genus to the Philippine fauna on the basis of an authentic collection made on Palawan. Because of the distributional interest of the situation, I provide in this paper a short diagnosis and drawings for this isolated species.

SCHUBART (1951) credits a total of six species of *Polyconoceras* to the Neotropical Region (Peru, Colombia, Venezuela). This situation roughly parallels that of *Rhinocricus* (Antilles) and *Acladocricus* (East Indies), and I tend to doubt that the American "*Polyconoceras*" are descended from the same ancestral form as the Asiatic. Perhaps it would be better at the present to slightly broaden the definition of *Neocricus* (CHAMBERLIN, 1941) to include all of the Neotropical forms having the *Salpidobolus*-type posterior gonopod.

***Salpidobolus meyeri* (Silvestri)**

Figures 1-6

Rhinocricus meyeri Silvestri, 1897, *Abh. Mus. Dresden*, vol. 6, no. 9, p. 8, pl. I, figs. 40, 41, pl. II, figs. 42-46.—CARL, 1912, *Revue suisse Zool.*, vol. 20, p. 172.

Salpidobolus meyeri: SILVESTRI, 1897, *Annali Mus. civ. Stor. nat. Genova*, vol. 38, p. 651.—CHAMBERLIN, 1920, *Bull. Mus. comp. Zool.*, vol. 64, p. 176.

Through the kind offices of Dr. Bernd Hauser, I have been able to restudy material (1 ♂, 1 ♀) in the Muséum d'Histoire naturelle, Genève, recorded from Buol, North Celebes, by CARL (1912). As the type specimens were doubtless destroyed by the bombing of Dresden in 1943, the Geneva material is of especial value, having been compared by Carl with Silvestri's type series.

I can add nothing to the existing accounts, aside from some drawings of the anterior legs and gonopods made from higher magnification than Silvestri's originals. It has been possible by a careful study of this large species to show conclusively that the seminal groove of the posterior gonopods runs along the edge of the inner distal process, and does not divide at its base as suggested by Brolemann's drawings of several Australian congeneric forms.



Phallopod anatomy, *Salpidobolus* and *Acladocricus*

FIG. 6.

Midlength of phallopod of *S. meyeri*, oral aspect, showing continuation of internal parenchyma (stippled) into tibiotarsal region of gonopod.

FIG. 7.

Corresponding region of *A. philippinus*, oral aspect showing abrupt termination of parenchyma. X, point of disappearance of tibiotarsal branch.

***Salpidobolus palawanus*, n. sp.**

Figures 8-12

Diagnosis.—A moderately large species with prominent scobinae on segments 8-54; antennae short, massive, and compressed, the small 7th article ellipsoid-oval, with 10 sensory cones; sternal plate of coleopods constricted at

base of median projection, coxae with a distinct deep vertical groove at lateral end; solenomerite of phallopods nearly as long and wide as tibiotarsus, subparallel to it or slightly divergent distally.

Holotype.—Male (Field Museum) from Brooke's Point (sea level), Palawan, Philippine Islands; May 1947, Field Mus. Exped.

Greatest diameter of body 11.5 mm, length indeterminable with accuracy owing to curvature and breakage but approximately 130 mm. 57 segments, the penultimate legless.

Color completely altered by preservation, at present variegated reddish brown, but with indications that in life the ground color may have been dark brown or black, with an orange band around the front half of each metazonite.

Head smooth, without particulars. Antennae short, massive, somewhat compressed distally, of the form shown in figure 8, articles 1-3 glabrous, article 4 with a few sparse setae on inner and outer ends, article 5 similar but with a few short setae on lateral surfaces near end, article 6 evenly and profusely setose. Article 7 small, ellipsoidal-oval in shape, with ten small sensory cones.

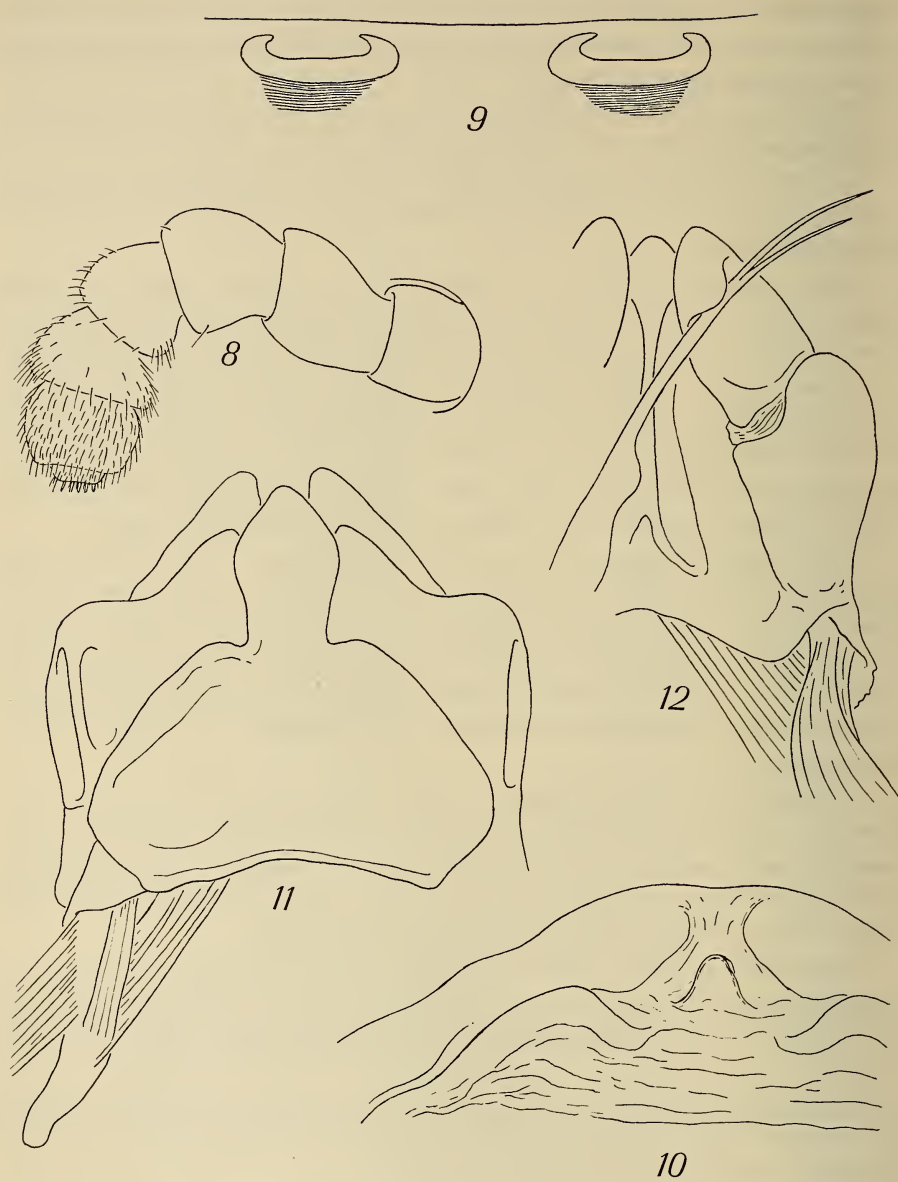
Body segments appearing smooth and polished to the eye, with high magnification (60 \times) the prozona seen to have about 8 subparallel concentric striae, the meso- and metazona densely and uniformly micro-punctate. Pleurae with reticulate ornamentation; sterna transversely striate. Anterior sulcus evident only as a faint suture line, posterior sulcus somewhat more evident and impressed across the dorsum between the ozopores, but no difference in diameter of meso- and metazona.

Scobinae beginning on segment 8, where nearly of maximum size, the series extending nearly to end of body (segment 54), on the last 8 or 10 segments represented by small widely-spaced subcircular pits. At midbody (fig. 9), scobinae wide and prominent, the middorsal space between them less than transverse width of one scobina. Posterior edge of metazona not bisinuate.

Legs relatively short, only apex of tarsi visible from above when legs are extended laterally. First two pairs of legs smaller, short, plurisetose, the ventral setal formula 3-3-3-3-9; following legs larger and with reduced setae, the typical formula 1-1-1-1-1-1, the tarsi occasionally with 2 setae. Coxae of legs 3-5 with moderately large, flattened, subtriangular lobes, in contact medially. Prefemora and femora of legs 3-6 strongly convex ventrally. Ventral tarsal pads very obscurely developed on a few of the anterior legs only.

Sympleuron of 7th segment prominently cristate medially, of the form shown in figure 10. Gonopods of the form characteristic of the genus, as illustrated in figures 11 and 12.

Paratype.—Female (Museum Genève) from Kabelnecan, 1400 ft., Brooke's Point, Palawan, May 1, 1947, Field Mus. Exped. Agreeing very closely with male in details of body form and sculpture including shape and distribution of scobinae,



Salpidobolus palawanus, n. sp.

FIG. 8. Right antenna, anterior-lateral aspect. — FIG. 9. Scobinae of segment 25.

FIG. 10. Median region of sympleurite of segment 7, oral aspect.

FIG. 11. Coleopod, oral aspect. — FIG. 12. Coleopod and right phallopod, aboral aspect.

but appreciably larger, ca. 150 mm long and 14.2 mm in diameter; body with 57 segments.

An additional adult female in the Field Museum material from the south slope of Mt. Balabag, 2800 ft., in southern Palawan (F. G. Werner leg. May 12, 1947) agrees closely with the types but because of the different locality is not designated as a paratype. It seems to have had a middorsal row of light spots in life.

The large size, high number of segments, and remarkably persistent scobinae seem to distinguish the form from all of the better-described taxa known to me. It is possible that I have redescribed a species introduced onto Palawan from some quite distant locality, but I feel that this likelihood is improbable.

Genus *Acladocricus* Brolemann

Acladocricus Brolemann, 1913, *Rec. Aust. Mus.*, vol. 10, p. 123. Type species, *Rhinocricus pyrrholoma* Attems, 1897, by original designation.

Adelobolus Verhoeff, 1924, *Ark. Zool.*, vol. 16, no. 5, p. 101. Type species, *A. simplex* Verhoeff, by subsequent designation of HOFFMAN & KEETON, 1960. New synonymy!

As here conceived, *Acladocricus* includes all of the Indoaustralian species in which the telopodite of the posterior gonopod is reduced to a single elongated subflagelliform article. Such species occur in the Philippines, Sulawesi, Queensland, and the Solomon Islands. The intervening islands, New Guinea, New Britain, and the Moluccas seem to be inhabited only by species referable to *Salpidobolus*. Both "genera" are represented on Sulawesi and in Queensland; only *Acladocricus* occurs on Mindanao, and only *Salpidobolus* occurs in the Fiji Islands, so far as is currently known.

At the time he proposed this name (as a subgenus of *Dinematocricus*), BROLEMANN had seen no material, and was unable to decide some anatomical points from the literature accounts. In describing the posterior gonopod in *Acladocricus* as "a single flagelliform branch, the inner branch missing" he went on to remark that "It would be highly interesting to know where, in such cases, ends the seminal duct, to which no author has ever alluded."

BROLEMANN had already mentioned, in connection with the diagnosis of *Dinematocricus* (s. l.) that the seminal duct was located, as in *Rhinocricus*, on the inner of the two apical branches. This being so, it is curious that, in the absence of direct observations, he presumed that it was this inner branch that was missing from *Acladocricus*. His opinion was substantiated in 1951 by SCHUBART, who wrote «Em certos gêneros falta o braço interno, o solenomerito (*Kanalast*); neste caso o próprio tíbiotarso encarrega-se da função do solenomerito.» But

it seems peculiar to think that the original solenomerite would have become suppressed, causing the seminal groove to migrate to a totally different position!

As a point of fact I can now establish with some confidence that in at least some species answering the definition of *Acladocricus*, the so-called inner branch persists, and it is the outer branch that has been lost. Among material sent to me for identification by the Field Museum of Natural History (Chicago), through the intervention of Dr. John Kethley, I noted specimens of *Acladocricus philippinus* Wang (1951) from Mindanao and thus had the occasion to compare the gonopod directly with that of *Salpidobolus meyeri* using high magnification.

BROLEMANN illustrated for several of his Australian species of "Dinematocricus" that the seminal groove terminated or divided at the junction of the two apical branches (see his figs. 55, 63, 69, and 74) although this is at odds with his verbal statement that the inner branch carried the groove. I could verify the latter condition in *S. meyeri* and two other species of the genus by proper positioning of the appendage and examination at $90\times$ magnification. Moreover, it could be observed that the interior of the telopodite, at its base, contains a dense parenchymatous material which is continued on into the "outer branch" for most of its length, as shown in figure 6. The inner, groove-bearing branch, has no central core of such material.

In the specimen of *Acladocricus philippinus*, the telopodite shows a small but distinct irregularity along its outer edge about the midlength. If this region is examined with higher magnification, as shown in figure 7 ("X"), it is noted that the seminal groove proceeds past it on the opposite margin, and that the central parenchyme core terminates abruptly just inside the marginal interruption.

These observations confirm that the inner branch in *Salpidobolus* is the functional solenomerite, and that in *Acladocricus* the outer branch is lost rather than the inner as Brolemann had guessed.

The case of *A. philippinus* is particularly instructive, as this species shows a late transitional stage in reduction of the posterior gonopod, the locus of the former process still being anatomically evident. This seems to me manifest evidence that what has been called a genus *Acladocricus* may well be merely an number of rhinocricids in which the major, outer branch of the gonopod has been suppressed in several unrelated lineages even though the tendency seems especially strong on Sulawesi. Until, however, most of the Indoaustralian rhinocricids have been studied comparatively to determine whether generic aggregations may be found in other characters, I suppose it best to maintain the name *Acladocricus* as a convenient frame of reference.

It may be noted in passing that in his 1920 paper, CHAMBERLIN misspelled the name of the type species as *Acladocricus pyrrhomola* instead of *pyrrholoma*, and in this error he was followed by WANG in his 1951 and 1961 papers on Philippine diplopods.

***Acladocricus philippinus* Wang**

Figure 7

Acladocricus philippinus Wang, 1951, Myr. Philippine Islands, p. 26, figs. 87-92; 1961, *Q. Jl. Taiwan Mus.*, vol. 14, p. 118, figs. 87-92.

This species has hitherto been known only from the type material, from an unspecified locality on Mindanao. I can now provide two precise sites from material in the Field Museum: 1 ♂, 2 ♀♀, from Mount McKinley, east slope at 3300 ft., Davao Province, 20-30 Sept. 1946, F. G. Werner leg.; and 1 ♂, Bugo (the exact location undetermined), 14-17 June 1948, H. T. Wright leg. Mount McKinley is a peak north of Mount Apo, 7 miles west of the city of Davao.

The specimens examined are slightly smaller than Wang's type, but agree otherwise closely with the description and drawings given by that author. There are in addition two other collections, probably of this species, from other places on Mindanao but in the absence of male specimens I forebear to attempt a specific identification at this time.

Genus *Proporobolus* Silvestri

Proporobolus Silvestri, 1897, *Annali Mus. civ. Stor. nat. Genova*, vol. 38, p. 651.

Type species, *Rhinocricus quintiporus* Attems, 1897, by original designation.

Pentocricus Schubart, 1951. *Anais Acad. bras. Cienc.*, vol. 23, p. 231 (as subgenus of *Rhinocricus*). Type species, *R. quintiporus* Attems, 1897, by original designation.

Cladiscocricus Brolemann, 1913, *Rec. Aust. Mus.*, vol. 10, p. 123. Type species, *C. falcatus* Brolemann, by original designation.

As originally conceived by SILVESTRI, this genus was monotypic. Subsequently CHAMBERLIN (1920) greatly increased the size of the group by referring to it six other species from Queensland, New Guinea, Fiji, and Halmahera. He did not state the basis for this association, and I do not immediately see what the species have in common. *R. quintiporus* of Attems has a singular looking posterior gonopod, it seems to be broadened distally and bifid, but there is also a small proximal branch on the inner edge of the telopodite. CARL (1918) has described an apparently related form, *R. fulvescens*, from the "Moluccas", and his drawing shows the seminal groove to bypass this basal process; if the illustration is correct the latter must be some accessory branch and not the solenomerite. Moreover, there is really not a great difference between *fulvescens* and "*Cladiscocricus*" *falcatus* from Queensland, at least as that species was interpreted and illustrated

by BROLEMANN in 1913. Perhaps the two names *Proporobolus* and *Cladiscocricus* could arbitrarily be kept separate until additional material can be studied, but if no better distinction can be found than what is now evident, *Proporobolus* will have to be given precedence although SILVESTRI originally based it on what is probably not even a species character (occurrence of ozopores on the 5th segment).

Genus *Desmocricus* Carl

Desmocricus Carl, 1918, *Revue suisse Zool.*, vol. 26, p. 445. Type species, *D. conjunctus* Carl, by monotypy.

The single species referable to this genus remains known only from the original types, and although it was well-described, the structure of the posterior gonopod is so singular that I am unable to make an evaluation at this time. The distal end of the otherwise simple branch is considerably expanded, but in general does not look much like that of a highly modified *Acladocricus*-type. I defer making any deposition of *Desmocricus* in the hope that eventually related species may turn up which would shed some light on the true nature of the posterior gonopod. *D. conjunctus* was described from a male taken in the "Moluccas" without closer locality.

SUMMARY

Salpidobolus Silvestri, 1897, is revived as the oldest available name for the Indoaustralian rhinocricids heretofore referred to the later genera *Dinematocricus* Brolemann, 1913, and *Polyconoceras* Attems, 1914. The opinion is advanced that the number of antennal sensory cones does not constitute a character of generic rank. The male genitalia and modified anterior legs of *S. meyeri* are discussed and illustrated in detail, and a new species of the genus, *Salpidobolus palawanus*, is described from several specimens taken on Palawan Island, in the Philippines.

The status of the various generic names proposed for Indonesian rhinocricids is discussed. In addition to *Salpidobolus* and its two synonyms, the names *Acladocricus* Brolemann (syn. *Adelobolus* Verhoeff), *Desmocricus* Carl, and *Proporobolus* Silvestri (syn. *Pentocricus* Schubart, *Cladiscocricus* Brolemann), are admitted. *Acladocricus* is considered as probably an artificial assemblage of species phylogenetically derived from a *Salpidobolus*, like ancestor by the reduction of the tibiotarsal element of the posterior gonopod.

REFERENCES

- ATTEMPS, C. 1897. Myriopoden. In: KÜKENTHAL. *Ergeb. zool. Forschungsreise i. d. Molukken u. Borneo*. *Abh. senckenb. naturforsch. Ges.* 23: 473-536.
- ATTEMPS, C. 1914. Die Indoaustralischen Myriopoden. *Arch. Naturgesch.* Abt. A, 80(4): 1-398.
- BROLEMANN, H. W. 1903. Myriapodes recueillis à l'isla de Cocos par M. le Professeur P. Biolley. *Annls Soc. ent. Fr.* 72: 128-143, figs. 1-10.
- BROLEMANN, H. W. 1913. The Myriapoda in the Australian Museum. Part II. *Diplopoda*. *Rec. Aust. Mus.* 10: 77-158.
- BROLEMANN, H. W. 1914. Etude sur les spirobolides. *Annals Soc. ent. Fr.* 83: 1-38.
- CARL, J. 1912. Die Diplopoden-Fauna von Celebes. *Revue suisse Zool.* 20: 73-206.
- CARL, J. 1918. Miscellanées diplopodologiques. *Revue suisse Zool.* 26: 417-468.
- CHAMBERLIN, R. V. 1920. The Myriapoda of the Australian Region. *Bull. Mus. comp. Zool.* 64: 1-269.
- CHAMBERLIN, R. V. 1941. New American millipeds. *Bull. Univ. Utah, biol. Ser.* 6(4): 1-39.
- CHAMBERLIN, R. V. 1955. New millipeds from Peru and adjacent parts. *Bull. Univ. Utah, biol. Ser.* 11(5): 1-47.
- HOFFMAN, R. L. 1953. Studies on spiroboloid millipeds. I. The genus *Eurhinocricus* Brolemann. *Proc. biol. Soc. Wash.* 66: 179-183.
- HOFFMAN, R. L. 1960. Studies on spiroboloid millipeds. V. The correct identity of the genus *Rhinocricus*, based upon a study of its type species. *Proc. biol. Soc. Wash.* 73: 5-14.
- HOFFMAN, R. L. & KEETON, W. T. 1960. A list of the generic names proposed in the diplopod order Spirobolida, with their type species. *Trans. Am. ent. Soc.* 86: 1-26.
- KARSCH, F. 1881. Neue Juliden des Berliner-Museums, als Prodrömus einer Juliden Monographie. *Z. Naturw.* 54: 1-79.
- KRAUS, O. 1954. Myriapoden aus Peru, II. *Senckenberg. biol.* 35: 17-55, figs. 1-93.
- POCOCK, R. I. 1909. Diplopoda. *Biologia cent.-am.* 1903-1910: 41-217, pls. 4-15 [Fasicle treating spiroboloids issued in 1909].
- SCHUBART, O. 1951. Contribuição para a fauna do Estado de São Paulo. II. Os Rhinocricidae (Opisthospermophora, Diplopoda). *Anais Acad. bras. Cienc.* 23: 221-275.
- SILVESTRI, F. 1897 a. Neue Diplopoden. *Abh. Ber. K. Zool. anthrop.-ethn. Mus. Dresden* 6(9): 1-23.
- SILVESTRI, F. 1897 b. Systema Diplopodum. *Annali. Mus. civ. Stor. nat. Genova* 38: 644-651.
- VERHOEFF, K. W. 1924. Myriapoda: Diplopoda. In: Results of Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia 1910-1913. *Ark. Zool.* 16(5): 1-142.
- VERHOEFF, K. W. 1941. Über Spirostreptiden Südamerikas, vergleichende Morphologie und Mechanik der Gonopoden und eine neue Rhinocriciden-Gattung. *Arch. Naturgesch. N. F.* 10: 278-302.

Adresse de l'auteur :

Radford College
Radford, Virginia 24141
Etats-Unis